School Shop

vol. XI no. 6
FEBRUARY, 1952

Industrial Arts in Retrospect and Prospect
by Gordon O. Wilber

Mahogany Bookcase Challenges Pupils
by Michael M. Zirkel

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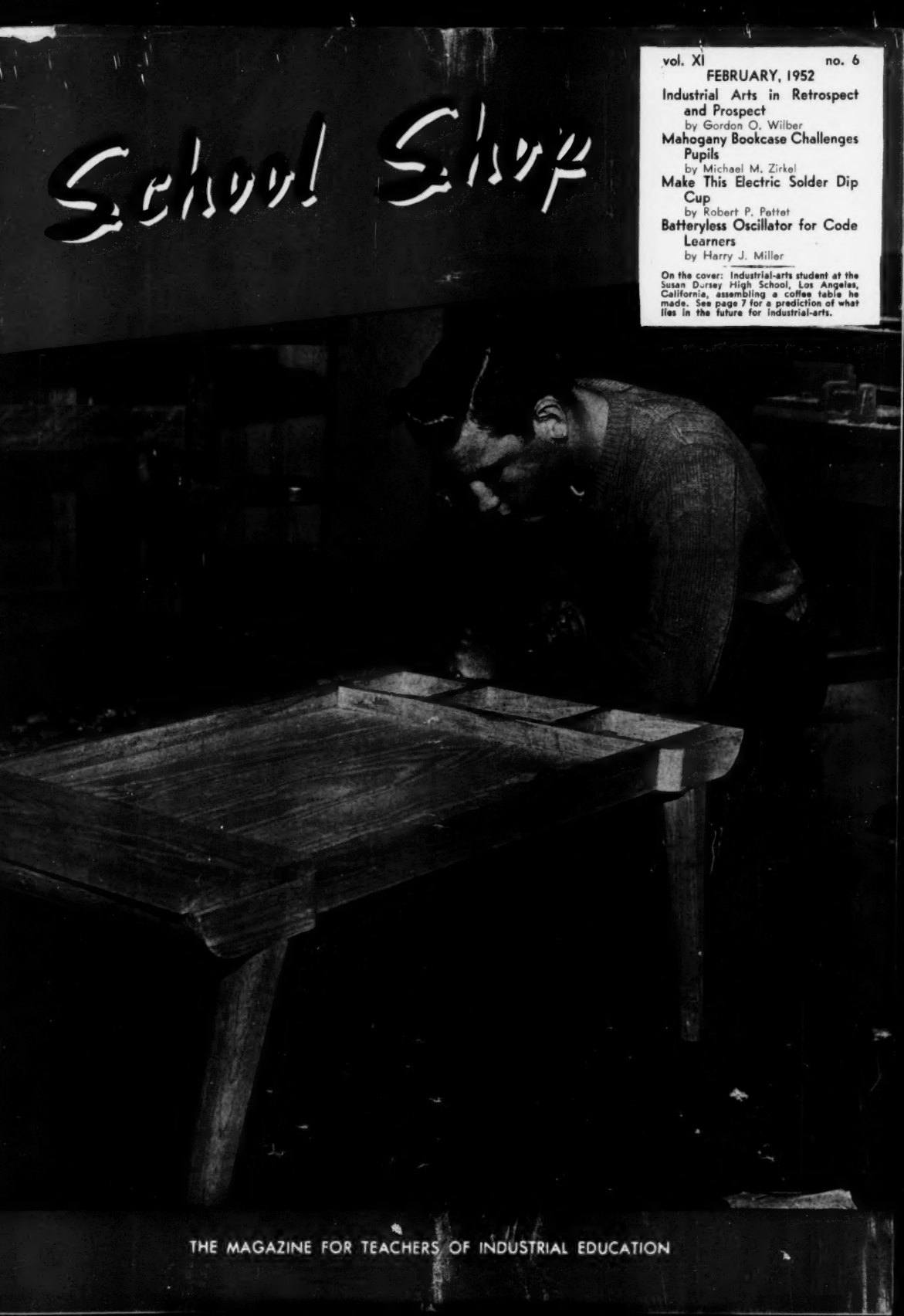
by Robert P. Pettet

Batteryless Oscillator for Code Learners
by Harry J. Miller

On the cover: Industrial-arts student at the Susan Dorsey High School, Los Angeles, California, assembling a coffee table he made. See page 7 for a prediction of what lies in the future for industrial-arts.



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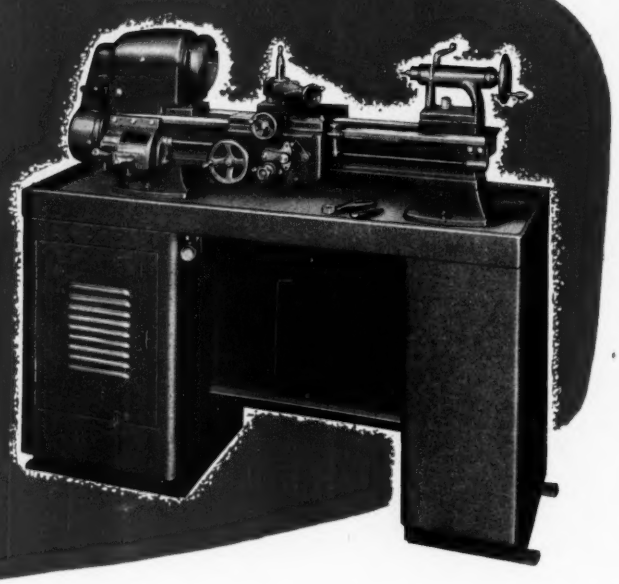

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School Shop

FOR INDUSTRIAL EDUCATION TEACHERS

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

What Do I Get Out of It?

It is estimated that there are about thirty thousand industrial-arts teachers in the United States. Approximately three thousand, or one out of ten, belong to a national professional organization directly concerned with their particular field. Included in this group are both those who belong to the American Industrial Arts Association and the Industrial Arts Section of the American Vocational Association. This is indeed a disturbing situation since it means that this relatively small group must carry the load of promoting industrial arts at the national level for all of the others.

It is interesting to note that whenever a teacher is asked to support a national professional organization he almost invariably counters with "What do I get out of it?" Being fully aware of the pressure which is on teachers to join their state and local organizations and other national groups it is easy to see why this should be their reaction. Yet if the trite saying is true that one gets from an organization only what he puts into it, then every industrial-arts teacher should be interested in supporting one of the organizations which most nearly represents his professional interests.

It is probably true that many of the industrial-arts teachers who are not members of one of their own professional organizations do belong to some such general group as the N.E.A. This is excellent. It should be clear, however, that such a large, covering organization can do relatively little about the problems which are specifically related to one particular subject-matter area.

Let us return again to the question, "What do I get out of it?" Almost every teacher is called on to contribute to many, many appeals for funds—the Community Chest, the Heart Fund, the Cancer Fund, the Christmas Seal Drive, and countless others. He gives to these because he knows they are worthy of his support and make for a better world in which to live, yet he prays that he may never have to call on any of them for help. Does he ask of the Red Cross worker, "What do I get out of it?" He certainly does not, but thanks his lucky stars that he is in a position to give to help others who may be in need.

Should we not consider the membership appeals of our own professional organizations in much the same manner? Only through membership in such groups is the individual industrial-arts teacher represented at the national level in movements and endeavors which tend to raise the standards of teaching in his own particular field. Through such membership he is represented in the larger affiliated organizations — the National Education Association and the American Vocational Association. Further he is represented at the meetings of such groups as the National Association of Colleges of Teacher Education, and through his membership he can be heard on such issues as accreditation. In other words, membership in a national professional association is in many respects insurance — insurance against legislation, official actions, or pressure movements which might prove detrimental to him and his profession.

In order to effectively do its job, however, these organizations must feel that they have the backing of the majority of industrial-arts teachers. In numbers there is strength, and with the support of all industrial-arts teachers, these groups, both of which are committed to the same purpose—the improvement of industrial-arts teaching—can go forward in their efforts to provide an ever-growing and more significant contribution to the education of American youth. Are you helping?—*A guest editorial by Gordon O. Wilber, Director of Industrial Arts, State Teachers College, Oswego, N. Y.*

Memo to Congress

One of the best comments on the Hardy sub-committee report on the derelictions of the Vocational Division of the U. S. Office of Education came from a state director of our acquaintance. It follows:

I will be happy some time in the future to note a Congressional inquiry, seriously conducted, into the benefits and values that children and youth achieve from their community educational experiences — it might be more useful than a tabulation of the lateness or clerical errors contained in statistical reports.

We gently suggest that each of the 48 state directors and others clip this item and send it to each member of the Congressional delegation from their state. —*L.W.P.*

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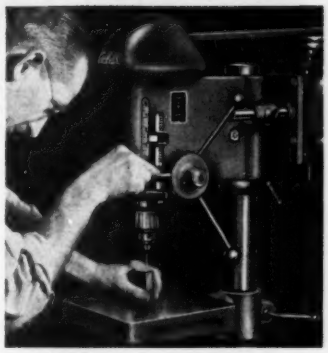

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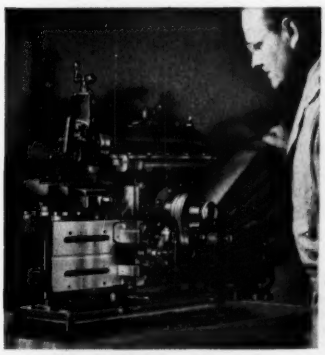

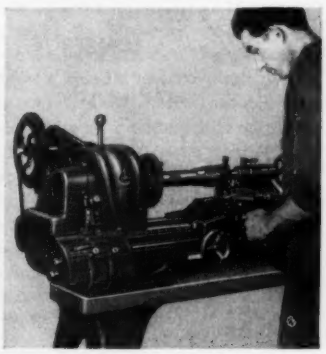

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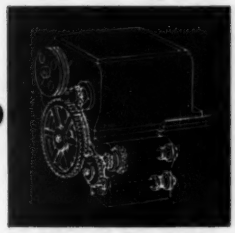

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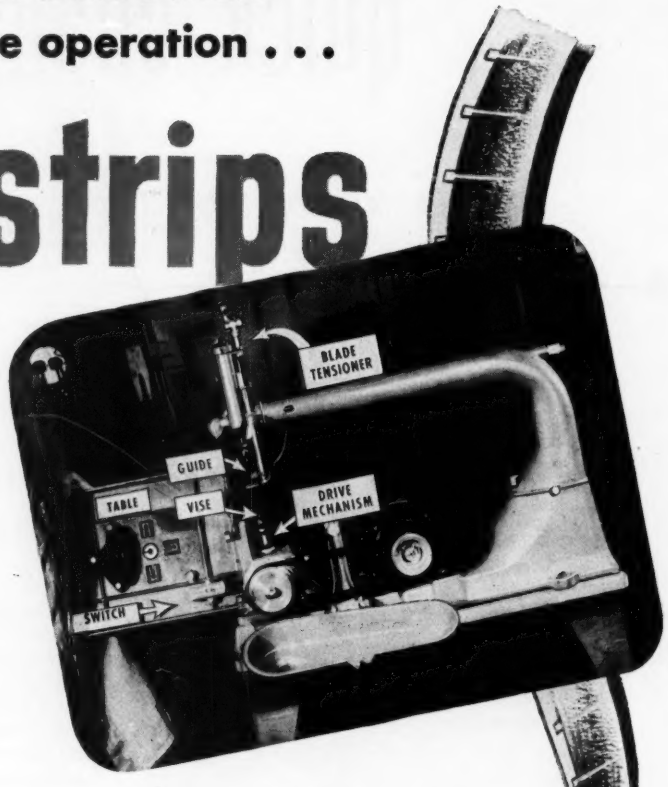

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Industrial Arts
in Retrospect and Prospect

By Gordon O. Wilber

This appraisal, based on looking back at industrial art's first half century and looking ahead at what may happen in the next half century, raises some interesting speculation. Gordon O. Wilber is Director of Industrial Arts, State Teachers College, Oswego, N.Y., and President, American Industrial Arts Association.

STANDING at the threshold of the second half of the twentieth century, the industrial-arts profession may well pause to take stock of its accomplishments during the past 50 years, and to set its goals for the decades ahead.

What was industrial arts like 50 years ago? At the beginning of the century manual training was just emerging from its swaddling clothes. Some leaders, following the lead of Charles A. Bennett, were objecting to the term "manual training" and were attempting to substitute the term "manual arts" as being more descriptive of a desired emphasis on design as well as hand training. Viewed objectively, however, over the distance of half a century, the program appears narrow, stilted, and based on false psychological and philosophical principles.

In general industrial-arts or manual-training departments were found only in the larger cities. Still undeveloped were the large and well equipped central and village schools with all of their excellent facilities. The programs were restricted largely to wood working with a few sheetmetal, printing, forge, and machine shops. The composite or general shop was not even envisioned as a possibility. Teachers were largely artisans, who were recruited because of personal qualifications, but a few schools like Teachers College of Columbia University, Oswego, and Stout Institute were giving special training for manual-training teachers.

Some Milestones

Against a background such as this it should be possible to evaluate the progress of the industrial-arts profession during the half century just past. What then are some of the milestones which indicate advancement?

There has been a gradual but consistent evolution toward a clear-cut and defensible philosophy which is rapidly being accepted by leaders in education. The tendency to look on industrial arts as a sort of junior vocational education is disappearing and in its place is noted an acceptance of industrial arts for the contributions it can make to general education. Indicative of this change in viewpoint is the change in name from manual training to industrial arts. The emphasis is no longer on training of the hand and eye but rather on educating youth to live with the products and arts of industry.

Important, too, is the increase and diversification of enrolments. At the beginning of the century, a relatively small number of boys were taking manual training, and in many cases they were individuals who could not fit into the academic program. The enrolment of girls in industrial-arts classes was hardly considered a possibility. Here, again, there has been steady growth. More and more pupils are being given the opportunity to experience industrial-arts activities. The trend toward the enrolment of girls in industrial-arts classes has been slow, but there are many signs which point to acceleration in this direction.

The focal point of progress has undoubtedly been in the enrichment of the curriculum. From the meager offering in restricted areas, the program has developed to its present rich and broad interpretation. This trend toward enrichment has not been spontaneous. Many leaders and far-sighted teachers have worked diligently, especially through the past three decades, to sell the profession on the need for a broader, richer program to reflect more adequately the growing complexity of industrial civilization, and to meet more fully the diverse needs and interests of youth. All may take pride in the fact that recent data show that, in the United States at large, more pupils are enrolled in the composite or general shop than in any other single type.

State Leadership

A fairly accurate barometer of development in industrial arts is found in the number of state supervisors whose specific responsibility lies in this field. Slowly, but with increased frequency the states are recognizing the value of such services. Whether the term supervisor or consultant or any other name is given to this individual, the results appear to be the same—an immediate improvement in the industrial-arts program in the public schools. There are now approximately ten states that have such leaders at work, looking toward the growth and development of the industrial-arts program.

Important, too, is the development and growth of industrial-arts teacher preparation. At the turn of the century only a few, probably less than a dozen, normal schools and universities were preparing industrial-arts teachers and most of these provided for two or less years. According to latest information there are now nearly two hundred such schools. Further, the requirements for certification have increased from two, to three, and then to four years. Graduate programs have become common, and there are now several universities offering the doctors degree in this field. This has done much to add stature to the profession and to increase the effectiveness of its teachers.

The growth and influence of professional organizations of industrial arts has also played an important role during the past half century. From the Industrial Arts Section of the American Vocational Association and the American Industrial Arts Association at the national level, down through the state organizations to the local clubs, all have

contributed mightily to the progress of industrial arts.

Another rather isolated, but tremendously important event has been the appointment of an industrial-arts specialist in the United States Office of Education. It must be evident to all who are watching industrial arts at the national level that this move is beginning to be felt throughout the nation. Leaders are being called into conferences and decisions are being reached which will add much to the effectiveness of teachers. It is well, therefore, that the value of representation in Washington be recognized and that the profession watch and support it.

Another important index to progress lies in the development of a substantial professional literature. Much credit is due the many leaders who have endeavored to explain and expand the philosophical, psychological, and pedagogical bases of industrial arts. Looking back over the past 50 years one can now appreciate and evaluate the importance of such writers as Bonser, Warner, Ericson, Griffith, Vaughn, Mays, Friese, Newkirk, and many others. Their contributions have done much to establish professional status for the profession among the general educators. Without such literature, graduate programs in industrial arts would be impossible and the problem of preparing new teachers would be much more difficult.

Better Facilities

Great progress has also been made in the development of efficient, clean, light, and well organized industrial-arts shops or laboratories. Photographs of the model shops of the first part of the century usually show a basement or semi-basement room, without benefit of paint, usually with inadequate light, and with limited equipment. Contrast with this the better shops of today—light, airy rooms, usually on the ground floor, well painted, well equipped, and organized for most effective work. The profession can indeed be proud of the general progress made in the matter of physical plant and equipment.

In all of these ways and many more, significant progress has been made. Industrial-arts teachers can now look with pride on their accomplishments. They should not, however, be blinded to the need for continued effort to still further improve and extend the program of industrial arts. Especially is progress needed in the following respects.

Improvement Needed

The philosophy and objectives of industrial arts must be clarified still further. The lay public and many school administrators still look on industrial arts as prevocational or vocational education. Teachers are still judged by the projects which can be assembled for the annual exhibit, and guidance counselors still send to the shop those who cannot succeed in academic subjects. This can only mean that industrial-arts teachers have failed to make clear the fundamental need for industrial-arts experiences for all youth and the difference between industrial arts and vocational training. And some present practices have not helped this situation. A consuming interest in projects, the apparent worship of the process and operation, our use of the progress chart as a means of evaluation—these and similar practices speak louder than statements concerning the desirability of meeting the aims of general education. Teachers should examine their programs and try to bring them into line with accepted philosophy and objectives.

Much progress is needed toward the attainment of the goal of industrial arts for everyone. At the present time a fair percentage of the boys in the seventh and eighth grades are enrolled in industrial-arts classes. There are still far too many schools where no industrial arts is offered. This is due in large part to the fact that many schools are too small to employ a full-time industrial-arts teacher. Efforts must be directed, therefore, toward an accelerated program of centralization which will make possible better educational facilities for all youth.

The greatest problem, however, is in the ninth grade and the senior-high school. Here industrial arts has lost considerable ground during the past decades, due largely to the fact that the activities offered have not fully challenged the senior-high-school boy. Granted that mandated programs have made it difficult to schedule senior-high boys, the fact remains that in isolated places skillful teachers with the help and cooperation of the principal and guidance counselor have been able to enroll up to 90 percent of all boys in the school. What is possible in these cases is also possible in others if the problem is attacked seriously and realistically.

The Distaff Side

Another fertile field for progress lies in the enrolment of a greater number of girls in industrial-arts classes. Apparently few industrial-arts teachers have made a real effort to encourage development along these lines. To stimulate this trend means more than simply making possible the enrolment of girls in regular industrial-arts classes. It means that courses must be adapted to meet the needs and interests of girls. Different types of projects will be needed—as well as a different approach to the teaching of skills. The far-reaching possibilities of home mechanics for girls has been explored in but a few places. And above all it rests with the industrial-arts teacher to sell the idea of industrial arts for girls to the school administration and to parents. Frequently the best approach to this has been an industrial-arts club for girls during an activity period or after school.

Stronger and more active professional organizations are vitally needed. More teachers must take an active part in supporting local, state, and national organizations. Individuals can do but little in raising professional standards and promoting recognition, but banded together they can move forward to ever more significant achievements.

During the next half century still further gains must be achieved in the matter of physical plants. The few industrial-arts shops still in the basement must be moved out to more adequate quarters. Still further gains must be made in matters of shop organization and shop housekeeping. There are many who still hold that a clean, orderly shop is not an efficient shop in terms of work accomplished. Industry has proved that this is not the case, and it seems certain that the profession can look forward to properly painted, well lighted, and attractive shops for the future.

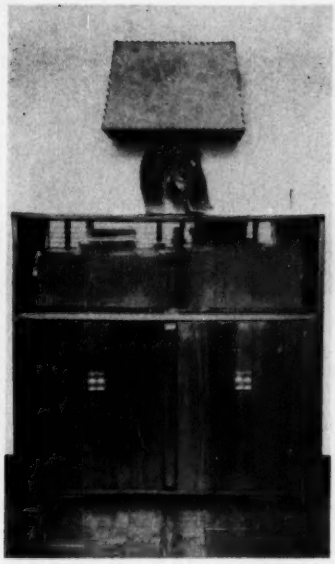
Much more extensive vertical development of industrial arts in public schools is also indicated. For a long time teachers and leaders have talked about the desirability of industrial arts in the elementary schools, and it is expected that this movement will go forward rapidly in the next few decades. School administrators and architects are beginning to see the need for craft and industrial activities at the lower levels, and new buildings consistently contain provisions, either for a separate room for such activities, or for facilities within or adjacent to the classrooms themselves. Present indications are that the elementary child of tomorrow will not be excluded from participation in industrial-arts activities as are thousands of children today.

Industrial arts will also be extended much more universally to the adult population. Many states and communities are now bending their efforts to bring to adults the advantages of continued education. Others are sure to follow, and

(*Continued on page* 20)

Mahogany Bookcase Challenges Pupils

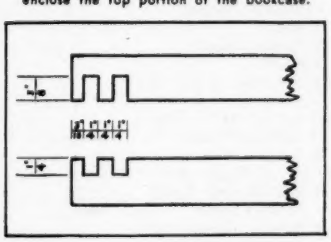
By Michael M. Zirkel



This attractive bookcase can represent a worthy achievement for second-year students.

This is an ideal advanced woodworking project—presenting a challenge, yet simple in design. It teaches the use of two basic machines—the circular saw and the jointer. This bookcase will enhance any home, modern as well as traditional. Michael M. Zirkel teaches in the James Otis Junior High School, 116th St. and Pleasant Ave., New York, N. Y.

Sectional view of bookcase shows clearly the slots in which the two glass panels slide which enclose the top portion of the bookcase.



BILL OF MATERIALS

No.	*Part*	*Dimensions*
1	Top	¾" x 12" x 40"
1	1st Shelf	¾" x 11¾" x 39¼"
1	2nd Shelf	¾" x 11¼" x 39¼"
1	Bottom	¾" x 12" x 38½"
2	Sides	¾" x 12" x 36¼"
2	Doors	½" x 19¼" x 22¾"
1	Door Slat	¼" x 2" x 22¾"
1	Section	¾" x 10⅞" x 12"
2	Glass Panels	3/16" x 12⅜" x 20"
1	Back (Pressed Wood)	¼" x 36¼" x 39¼"

Hardware:

4 Hidden Hinges, 2 Door Knobs, 4 Gliders, 2 Door Catches.

ANY figured grained wood can be used in this bookcase project. We used mahogany. Because of the simplicity of design, a beautiful grain and finish is necessary to make the piece look interesting. This is easily done with four coats of thinly-cut shellac rubbed down, followed by four more coats of furniture finisher's padded lacquer. The resulting rich-looking finish is phenomenal.

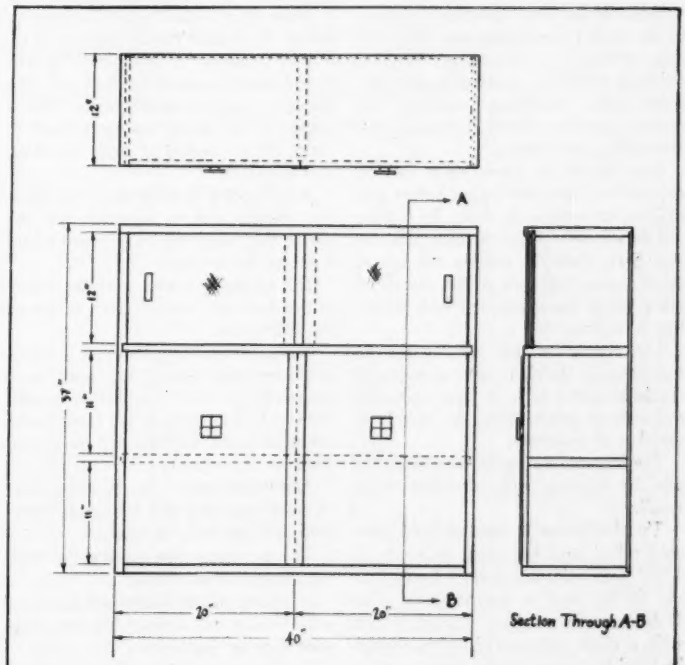
In this project the advanced student will learn accuracy in cutting to length and width, how to cut on the waste side of a line in making the dado grooves for the shelves, how to lift the stock away from the circular saw while cutting the stop dado of the second shelf, how to fit doors and use hidden hinges, and other important construction details applicable to this type of project. Only 12 screws, 32 nails, and glue are needed to assemble the entire piece.

The screws holding the top to the sides of the bookcase are counter-sunk; the holes are covered with plugs of the same wood, with the grain matched. The first shelf is a through dado, and the second shelf is a stop dado; each is glued in place. The screws holding the bottom to the sides are covered over with plastic wood. The doors are made of three-ply panels. The door slat is glued to the right door with parallel clamps.

Procedure in Brief

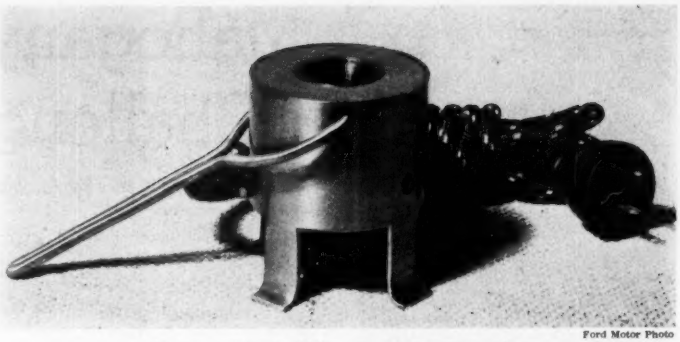
Rip stock for the top, bottom, and two sides to 12" in width, for the first shelf to 11¾" in width, and for the second shelf to 11¼" in width. Crosscut the top and bottom to 40" in length each, the sides to 35½" each, and the first and second shelves to 39¼" each. The rabbets for the pressed-wood back should be cut out on the back edge of top, two sides, and bottom. Cut out the

(Continued on page 18)



Make This Electric Solder Dip Cup

By Robert P. Pettet



Ford Motor Photo

Neatness and practicality characterize this solder dip cup which is handy for school or home workshop.

This is a rather unique project that won its maker, Jack Lucas, student at Manley Vocational School, Chicago, Illinois, a third prize in the Ford Industrial Arts Awards. The drawing is by Joseph Kantner, also a Manley student. Robert P. Pettet teaches at Manley Vocational School.

STUDENTS find that they have a useful, practical, and serviceable product when they make an electric solder dip cup. The solder cup can be used on a bench or, with the handle attached, can be carried to the job to be soldered such as wire joints at electrical outlets.

Some of the shop practices required of the student are laying out, filing, fitting, drilling, countersinking, tapping, forming, soldering, making heating element coils, insulating, winding coil springs, making electrical connections, assembling, and testing.

Care should be taken when making the shell to check the layout before any drilling or cutting is done. In cutting out between the legs, cut alongside the legs first. Then, in making the cut at right angles, use care so the discarded piece comes out easily and little finishing is required.

Care should be taken not to make the 1/4" slots for the shell cover oversize. It would be better to keep them undersize and enlarge when fitting the two parts together if necessary.

The legs can be easily formed in the vise by tapping with a mallet while bending.

The shell cover is made of 5/64" soft cold rolled steel but could be made of 1/16" soft cold rolled steel instead, if the thicker steel is not available. The 1" hole can be punched, drilled, or cut with a circle cutter. The cover should be tried frequently in the shell to get a close fit. Mount cover in shell and peen the shell lightly over the cover at the "ears" to hold the parts together.

The holes for mounting the bracket are centered, drilled, and tapped after the cup assembly has been fitted in the shell.

Care should be taken to follow the drawing when making the asbestos cement terminal board to get the cut-out section in the right location.

The handle can be best formed by first bending the ends of the soft annealed steel wire at right angles to its length so that the ends are parallel. Next form the curved portion, using a pattern to check the arcs. Finally, bend at the exact center to finish the forming.

Music wire is used for the spring to protect the heater cord. It is wound on a 5/16" mandrel so that a bushing will thread into the end of finished coil. The fitting to hold the spring to the shell is made of 3/8" brass tubing peened to catch on the inside of shell to which it is soldered.

A 1/8" socket bushing with the shoulder rounded off is threaded into the spring to protect the heater cord where it leaves the spring.

The spring is placed over the fitting at the shell and "tacked" with solder on the under side.

When assembling the cup, copper burr, terminal board, and mica insulator with 1/4" bolt, a porcelain cement, such as Insa-lute #1, is put between the terminal board and burr and then tightened up immediately.

Additional cement can be added later to cover burr and bolt. Fit cup in shell; drill and tap holes in bracket.

The procedure for making the heating element is as follows:

1. Wrap end of No. 30 nickel-chrome wire around one end of No. 14 music wire four or five times.

2. Place in chuck of hand drill so that the No. 30 wire is held tightly around music wire in chuck.

3. Guide nickel-chrome wire, as other wire is being turned in hand drill, so as to form a closed spring. Leave 1' unwound.

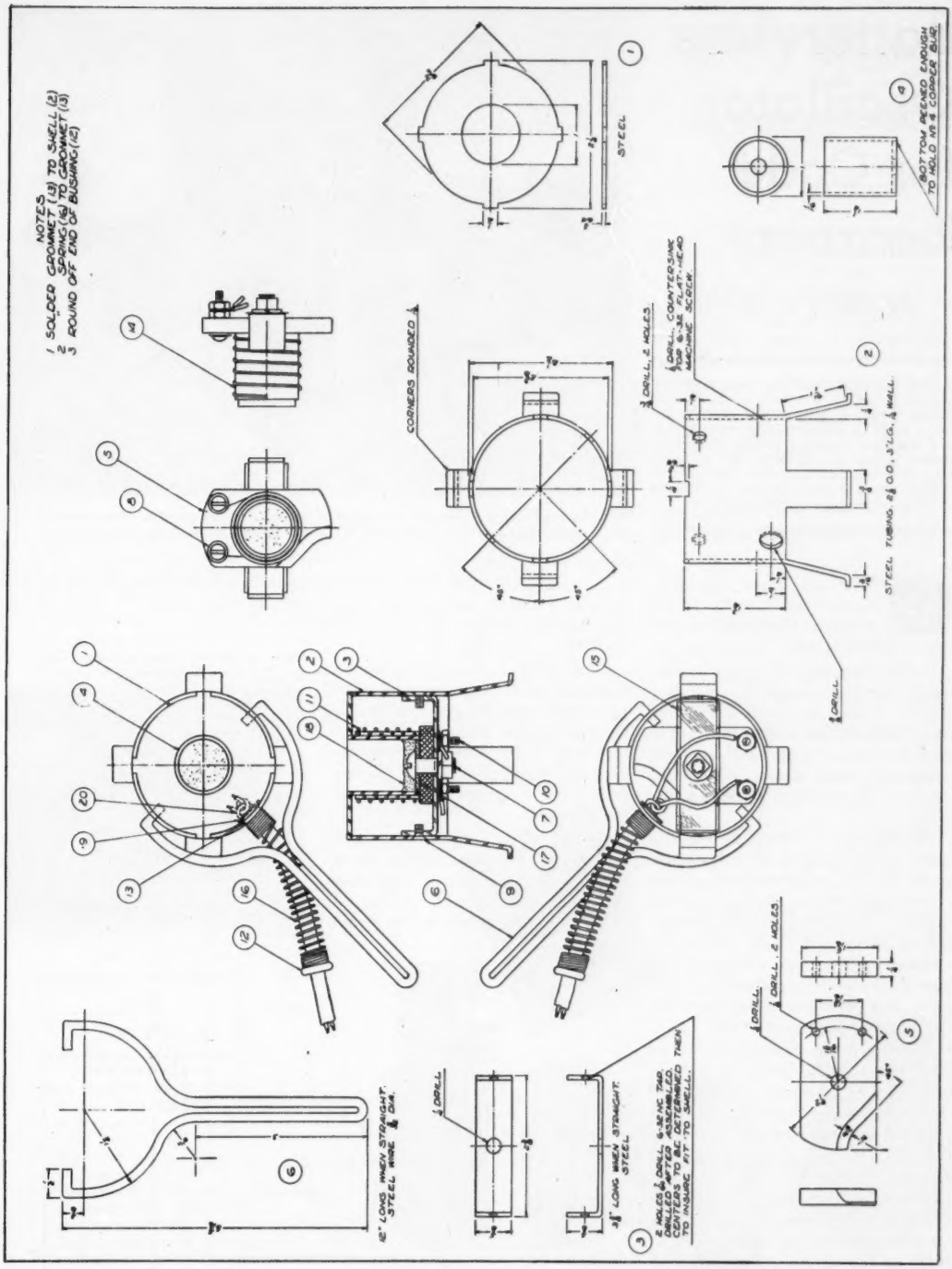
4. Remove wire from drill and pull on end of No. 30 wire that was in drill, while holding music wire at right angles to force of pull, so that 1' of No. 30 wire is again straightened out. Slide spring off heavy wire.

5. Loop 1' end of wire back and forth once to form a three-strand wire, 4" long.

6. Twist the three strands of wire into a single wire with hand drill.

BILL OF MATERIAL

No.	Name	Quan.	Material
1.	Shell Cover	1	C R S
2.	Shell	1	C R S
3.	Mounting Bracket	1	C R S
4.	Cup	1	C R S
5.	Terminal Board		
6.	Handle		
7.	1/4"-20NC x 5/8" rh Mach. Screw & Nut—1/4" x 9/64" x 5/64" SAE Lock Washer	1	Steel, std.
8.	Terminal Washers—No. 11 Copper Burrs	2	Copper
9.	6-32 NC x 1/4" flat-hd. Machine Screws	2	Steel
10.	Terminal Screws 6-32 NC x 3/4" rh Machine Screws & Nuts	2	Brass
11.	Heating Element—No. 30 x 22' long	1	Nickel-chrome
12.	Socket Bushing—1/8"	1	Comp.
13.	Grommet—3/8" O.D.—24 Gage	1	Brass
14.	Mica—1 1/8" x 4 1/2", .007 Thick	2	
15.	Mica—3/4" x 2 1/4", .014 Thick	1	
16.	Spring—No. 10 x 5' Long	1	Music wire
17.	Cup Washer—No. 4 Copper Burr	1	Copper
18.	Porcelain Cement		
19.	Fiber Washer—1/2" O.D. x 9/32" I.D.	1	Fiber
20.	Underwriters Knot		Heater cord


NOTES
1 SOLDER GROMMET (13) TO SHELL (2)
SPRING (16) TO GROMMET (13)
3 ROUND OFF END OF BUSHING (12)
STEEL
BOTTOM BEND ENOUGH TO HOLD IN 3/4 CORNER BUS
DR BY JOSEPH KANTNER
CORNERS ROUNDED
DRILL, 2 HOLES
DRILL, COUNTERSINK FOR 6-32 FLAT-HEAD MACHINE SCREW
STEEL TUBING 3/8 O.D., 3/16 I.D., 1/16 WALL
DRILL
DRILL, 2 HOLES
DRILL
4" LONG WHEN STRAIGHT. STEEL WIRE 1/8 DIA.
4" LONG WHEN STRAIGHT. STEEL
2 HOLES 1/8 DRILL 6-32 NC TAP. DRILLED AFTER ASSEMBLED. CENTERS TO BE DETERMINED THEN TO HOUSE FIT TO SHELL.

7. Form other 1′ end likewise into a three-strand wire, 4″ long.

The procedure for putting the heating element on the cup is as follows:

Place layer of mica on the outside of the cup. Have mica tight to terminal board. Fasten with spun-glass tape or small amount of thread.

Fasten lead of heating element to terminal.

Wind one half the heating element on the cup, stretching element to about twice its length, while so doing.

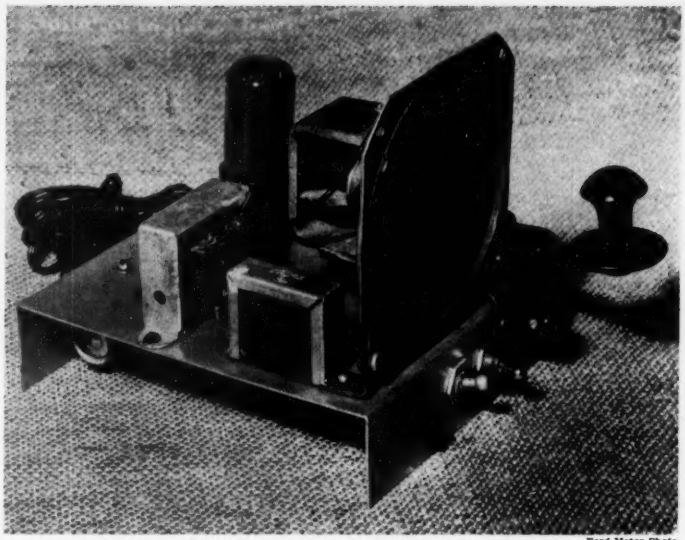
Place additional mica over wound ele-

(*Continued on page* 18)

Batteryless Oscillator for Code Learners

By Harry J. Miller

Neither time nor fashion fail to dim youngsters' interest in learning the Morse code. This oscillator project is popular with students because it can be constructed of scrap materials and does not require a battery. It won its student maker, Kent Gaerthe, an honorable mention in the Ford Industrial Arts Awards contest. Harry J. Miller teaches at Gillespie Junior High School, Philadelphia, Pa.



Ford Motor Photo

Note the compactness of this oscillator which is made from scrap parts. Scouters and would-be "ham" radio operator licensees like this project because it speeds up code learning.

THIS single-tube code practice set fulfills many of the accepted objectives of instruction in industrial arts.

Student curiosity about the uses of the fleeting electron and the increasing interest of scout-age youth in learning Morse code make this project a "natural." It serves as a means of orienting students to using simple radio parts, components, and schematic wiring diagrams.

The student may purchase the few parts at low cost from radio-supply houses or can salvage them from a discarded radio chassis. Unlike so many practice oscillators which feature phones, the output of the single-tube-operated speaker gives a king-size volume which may be heard over an entire room, thus permitting reception of signals by many boys at one time.

The circuit is the familiar tuned plate feedback type using a 117N7 tube which, containing a pentode and a diode section, performs the dual function of an oscillator and half-wave rectifier.

Beginners learning code as well as experienced operators who wish to maintain their performance at top level will find this set valuable since it is a complete unit with the key mounted directly on top of the chassis and need only be plugged in to a 115-v outlet.

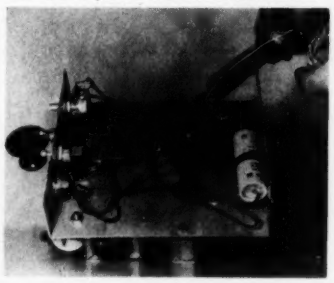
Keying is in the speaker circuit, as shown, and a jack wired across the key permits plugging in another key or a high-speed "bug" for fast practice.

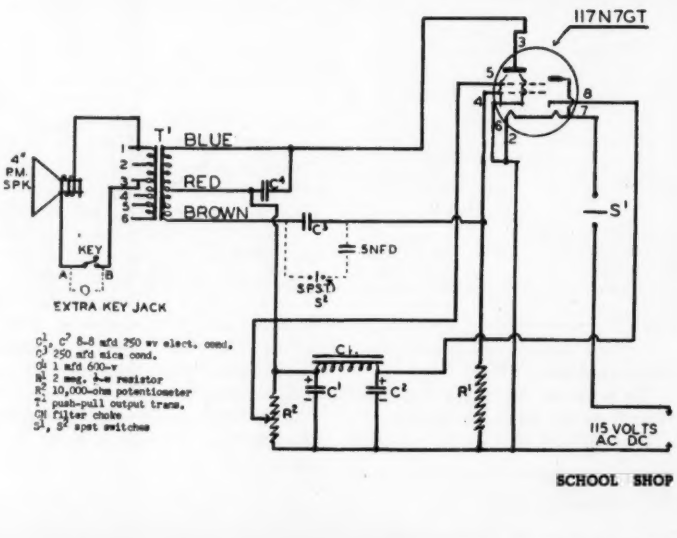
Use rosin-core solder, keep wires as short as possible, and remove solder bits that may become lodged in and about the components.

R^2, a 10,000-ohm potentiometer, regulates the audio output, an on-off switch (S^1) throws the heater and rectifier of the tube directly across the line, while S^2 (shown in the drawing by a broken line) operates through a .5mfd condenser to allow a change of pitch in the audio signal.

Gaining facility with the simple tools needed, the planning and layout required, making the drawing, and following the schematic wiring diagram will all be richly rewarding to the student whose interest has been aroused by this fascinating pursuit. ★

Rosin-core solder is used sparingly with care so that drops do not short the connections.





News

HAPPENINGS IN INDUSTRIAL EDUCATION

Inter-American VE Seminar

PLANS are now being made for the Inter-American Seminar on Vocational Education to be held this summer on the University of Maryland campus at College Park. Delegates have been invited from each of the American republics. The seminar is sponsored by the Pan American Union, the International Labor Office, and the University of Maryland. Collaborating agencies include the U.S. Office of Education, the American Vocational Association, and other governmental and professional organizations.

Iota Lambda Sigma Officers

NEW national officers of Iota Lambda Sigma, professional fraternity in industrial education, are: president, Charles P. Scott, University of Pittsburgh; vice-president, Herman F. Hinton, Florida State Supervisor of Trade and Industrial Education; secretary-treasurer, Clyde H. Wilson, University of Tennessee (re-elected); and historian, Leonard R. Booker, Clemson College. A new chapter has been installed at Mercer University, Macon, Ga.

Scholarships Awarded

TEN scholarships are being awarded at the New York State Institute of Applied Arts and Sciences at Utica, N.Y., by the Utica Drop Forge and Tool Corp. as a means of encouraging young men to secure training to prepare themselves for industrial careers. The scholarships cover residence and tuition for two years and are made on a competitive basis to high-school graduates. Recipients are expected to work in a manufacturing plant during the summer months to supplement their studies by practical on-the-job training.

Convention Calendar

Indiana Industrial Education Association, French Lick, Ind., March 27-29.
Ohio Industrial Arts Association, Deshler-Wallick Hotel, Columbus, March 27-29.
Texas Vocational Association, Shamrock Hotel, Houston, April 3-5.
Illinois Vocational Association, Congress Hotel, Chicago, April 3-5.
Missouri Annual Industrial Education Spring Conference, Columbia, April 18-19.
Connecticut Industrial Arts Association, Teachers College of Connecticut, New Britain, April 18-19.
American Industrial Arts Association, Congress Hotel, Chicago, Ill., April 30-May 1.
Georgia Vocational Association, Municipal Auditorium, Savannah, June 9-10.
International Graphic Arts Education Association, Madison, Wis., June 29-July 2.

Sisters Take IA Minor

A MINOR in industrial arts is becoming part of the educational equipment of many of the Catholic Sisters of Michigan. During the last summer, 50 nuns assembled in Detroit for courses at Wayne University and Marygrove College. The drafting program of the Detroit Archdiocese, started in one school in 1946, has now spread into 70 schools in Michigan and neighboring states.

Strictly Personal

ABOUT YOUR FELLOW TEACHERS

ROBERT A. CAMPBELL, state supervisor of industrial arts for New Jersey, has retired after 30 years of service in the State Department of Education.

PAUL H. SWOPE has been named to the West Virginia State Department of

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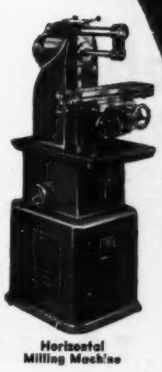
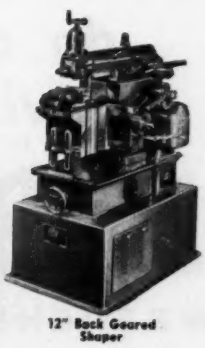

Horizontal Milling Machine

No. TS568 11¼" Swing Lathe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Education trade and industrial service staff.

FRED J. HARTMAN has retired as educational director of Printing Industry of America.

C. EDGAR STAHL, supervisor of adult education and extended school services in Indianapolis, Ind., has been appointed principal of Emmerich Manual Training High School in Indianapolis, succeeding BURTON W. GORMAN, who has gone to George Peabody College for Teachers, Nashville, Tenn.

LESTER A. REPPERT, former director of the Chicago, Ill., School of Printing, died recently.

PAUL L. SCHERER of the Cleveland, Ohio, schools has joined the faculty of the department of industrial arts of Santa Barbara College, University of California.

ALLAN ROBINSON has retired from the principalship of the Mergenthaler Vocational High School of Printing, Baltimore, Md.

DAVID SNEDDEN, professor emeritus of vocational Education, Teachers College, Columbia University, died Dec. 1 at 83 years of age.

WILLIAM DUNNING is teaching drafting at Fresno, Calif., State Teachers College.

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Diamond Dust

Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.

Catch Them Early

AND so it came to pass that Jack Jones woke up to the fact that he had become a member of the teaching profession. As he reflected that, next Monday, he would be compelled to face a group of young people, more or less eager to follow his leadership, he began to wonder how he got himself into such a pickle anyway.

Never in his wildest dreams had Jack visualized himself occupying the position of a teacher. In his earlier years he may have had an ambition to drive a garbage wagon, or, if he had been one of the more ambitious youngsters, he might have considered the possibility of taking over the job of President.

As time passed however, these infantile dreams faded and in their place there developed the idea that, if he hoped to attain a position which was in keeping with his abilities, it would be necessary for him to obtain a college degree. The question of the specific occupational area into which he might go was given little consideration. The degree was the important thing and, having attained it, employers would beat a path to his door, begging him to enter their organization and save it from disaster.

It was with high hopes, therefore, that Jack entered the college of his choice and proceeded to acquire the culture which was to serve as the key to the occupational world.

Jack did pretty well in his freshman year, but after he had assumed the dignity of a sophomore, his emotions caused him to respond to the wiles of a winsome blonde who chanced (?) to sit beside him in one of his classes.

From one point of view this might be considered good, but from the standpoint of his scholastic achievement, it was disastrous. Jack forgot his occupational motive, if he had one, and began to arrange his classes solely so that they coincided with those of his lady friend.

Time passed. One day Jack began to realize that the day of graduation was approaching and that presently he would be compelled to leave the cloistered atmosphere of his alma mater and go out

into the cold world of work. Moreover, it dawned on him that he would be faced with the problem of earning enough to support himself and the young lady who, by this time, was contemplating matrimony.

This might be considered a healthy situation but, when Jack reflected on his earning ability, he had difficulty in determining who would pay for the groceries he and his prospective bride would need. As he considered ways and means of overcoming this difficulty, someone suggested that he might enter the teaching profession. Unfortunately the emoluments received by a teacher did not impress him favorably, but it appeared to be the only possibility, if he hoped to avoid the tasks which he believed were not in harmony with a college degree.

When he investigated the possibilities of this field, he was distressed to discover that he had neglected to arrange his college work so that he might earn a teachers' certificate. Notwithstanding this difficulty, the young couple were married. However, they had an understanding that she would carry on with her job, while he spent another semester acquiring the courses in education which he needed to qualify him to teach.

Incidentally, Jack had little interest in, and just as little aptitude for, teaching. In spite of this, in one short semester he qualified for teaching. With this background he received an appointment, and, next week, all of the problems of a teacher will descend upon him.

Is it any wonder that we have some poor teachers?

The moral attached to this, insofar as industrial arts is concerned, is that teachers in this field should become active in selecting prospective teachers from among their pupils. Having selected an individual on the basis of interest, aptitude, and attitude, he should provide the student with opportunities to assist him in his teaching. By this means the youth becomes familiar with the job of teaching, and encounters some of its problems.

If the reaction of the young person is good, opportunities can be created to steer him into a college where he will receive proper training, and suggestions made in regard to the subject elections he should make.

In other words the selection of industrial-arts teachers should begin in the high school, and not be left to the end of the senior year in college. ★

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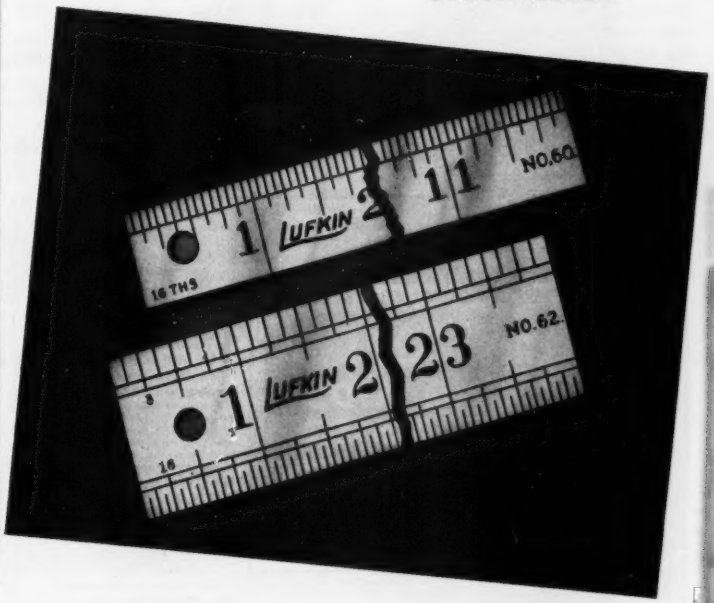

Large, clear figures and graduation lines are permanently etched into the steel. The contrasting black graduations show up sharp and clear against the polished steel background. Both rules are extremely durable and are built to take student "treatment."

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Filing Radio Diagrams

To preserve radio and electrical diagrams so that they may be found easily when needed, draw them on a letter-size file folder. The cardboard is more durable around the workbench than an ordinary piece of paper, and storage is a simple matter either in a notebook or a file box. The desired diagram can be quickly located from a stack by identifying it on the index tab.

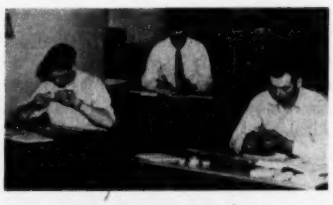
For small sketches a folder may be cut along the crease, while clippings and other notes may be attached with scotch tape.—*Hugh Lineback, Oklahoma A & M College, Stillwater.*

The Tool Borrower

Here is a special system for the teacher or other tool borrower who forgets to return tools. Build a separate tool cabinet in which can be placed a fairly good handsaw, a hammer, a screw driver which has seen considerable service, a steel square with some visible numbers on it, and several other tools of equal loaning value. Place a pad of small slips of paper near this cabinet on which the borrower must write his name and indicate when he expects to return the tool. If not returned on time, it affects only the next borrower. — *Clarence Gustke, Eighth Grade Shop, Parkersburg, W. Va., High School.*

New Drafting Aid

In our beginning course in mechanical drawing or engineering drawing we are putting to use a relatively new plastic product called Styrofoam, made by Dow Chemical Co. It is extremely light, easily cut with pocket knife, does not soil the hands, and is reasonably priced. It may be secured from hobby supply houses.



In developing visualization in orthographic projection, a complicated object might first be cut out of some material so that the beginning draftsman can actually see the intersections of surfaces. The materials which have usually been used are wood, clay, potatoes, etc., all of which either require large amounts of time to fashion to required shape, or do not readily lend themselves to use in the drafting room because of resulting dirt or refuse.

Styrofoam may be used for making models while the student continues to draw and neither the desk nor the student becomes any dirtier. Incidentally, Styrofoam is becoming more popular as a window-display material for the Christmas season, and also as a material for shop projects of a limited nature.—*J. H. Bailey, Central Michigan College of Education, Mt. Pleasant, Mich.*

Painting Galvanized Metal

When painting galvanized metal with oil paints or enamels, the paint or enamel will chip and peel in a short time if not treated before painting with an acid to form a surface to which the paint can form a firm bond. Acetic acid (common household vinegar) applied undiluted to the galvanized surface solves this problem.—*F. A. Thoendel, Assistant Professor of Industrial Arts, Nebraska State Teachers College, Chadron.*

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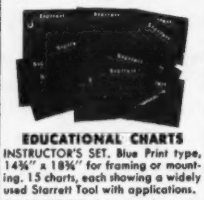

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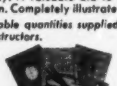

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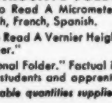

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Bookcase . . . . . *from page 9*

glass panel slides ¼" wide.

Prepare for setting the shelves in place. Set up a ¾" dado head in the circular saw. Draw the layout for the grooves on the inside faces of the two sides, in which the shelves will be inserted. Cut the dadoes for the top shelf clean through. Cut the dadoes for the second shelf to a point ½" from front edge. For the two doors, cut two pieces of ½" laminated stock to the required dimensions. Cut the ¾" piece that sections off the first shelf, the pressed-wood back, and the door slat to their respective sizes.

The glass is ordered from a glazier who also grinds the cut-out finger grips. Insert the back glass panel first, sliding it into the ⅜" top groove, then dropping it into place in the ¼" bottom groove. Repeat process for front panel. ★

Solder Cup . . . . . *from page 11*

ment and wind remaining half of the element, stretching to about twice its length.

Fasten the remaining lead to terminal while holding tension on wound element.

If the leads of the heater cord are taped with spun-glass tape where they connect to the terminal board, it will lengthen the life of the heater cord.

The finished project is a worthwhile addition to the equipment of the school or home workshop. ★

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Hardwood Corporation Appoints New Educational Lumber Head

Robert C. Stucker

ROBERT C. STUCKER of Cleveland, Ohio, has been appointed General Manager of the Educational Lumber Division of the Hardwood Corporation of America, Asheville, North Carolina, according to John B. Veach, President. The new Educational Lumber Division was established recently to specialize in hardwood lumber for use in industrial education.

Mr. Stucker is widely known in the educational field and brings to his new association 38 years of experience in the lumber and millwork industry. For the past 23 years, he has worked exclusively in the field of industrial education.

Associated with Mr. Stucker in the new Educational Division will be Blake L. Lytle, who has had more than 25 years' experience in the hardwood lumber industry in the yard, mill, purchasing, and shipping operations. Mr. Lytle will assume similar duties in the new Educational Lumber Division.

Effective immediately, the new Educational Lumber Division of the Hardwood Corporation of America will open offices in Asheville, North Carolina, and a catalog announcing the complete line of lumber species will be available to all schools, colleges, and universities.

IN THE Morning Mail . .

Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Michigan.

Dear Sir:

To me the editorial in the October issue entitled "Are Hand Skills Obsolete?" by T. D. (Thomas Diamond, Chairman of SCHOOL SHOP's Editorial Advisory Board) is a *classic*. It should be made into a poster and placed over the desk of every industrial-arts teacher and in every industrial-education shop.

William Bicknell,
Southern Illinois Univ.,
Carbondale

Dear Mr. Diamond:

I enjoyed your editorial "Are Hand Skills Obsolete?" in the October issue.

There is a philosophy being preached in some quarters that the development of skills is no longer of major importance in industrial-arts classes. . . . Judging from the one-quarter million dollars being spent in the 1951 Industrial Arts Awards Competition, the Ford Motor Company apparently does not think the need for hand-tool skills no longer exists.

Be that as it may, your editorial is timely and expresses the point of view of many supervisors and teachers. Keep up the good work.

Claude E. Nihart,
Head Supervisor,
Vocational and Practical Arts,
Los Angeles, Calif., Schools

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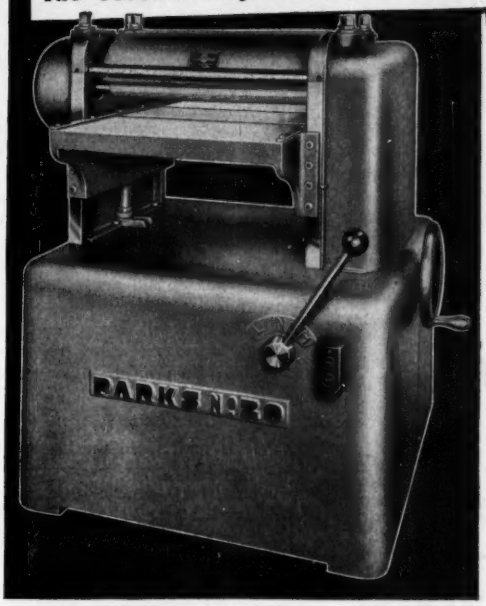

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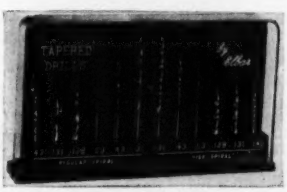

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Industrial Arts . . . *from page 8*

in any such development the industrial arts and crafts will hold an important place. Industrial-arts teachers have an opportunity and a challenge to promote the types of adult activities which will make for richer living and more intelligent citizenship.

Young Leadership Needed

An ever-present and pressing need of the profession is for more and better leaders. More young men are needed who are willing and eager to serve their profession. The continued growth and development of professional organizations mentioned earlier will help to encourage and aid the development of such leadership. The inevitable appointment of additional state supervisors in other states will also help. A willingness on the part of older leaders to accept, encourage, and help in the development of young men in the profession will do still more. If progress is to be made, there must be leadership and such leadership must come from the young men who are just now starting their careers.

And underlying all of this is the problem of better and more effective teacher education. More efficient selection of candidates for industrial-arts teacher education must be developed. Every industrial-arts teacher can help. By picking out and grooming some promising students to apply for admission to teacher-education programs each can do much to raise the whole level of the profession.

In the same connection the profession may look forward to more and better graduate programs. The time is probably not too far distant when a masters degree will be required for initial certification to teach industrial arts in most states. When this time arrives, more and more leaders and master teachers will be looking toward the doctors degree. This in turn will require more and better graduate programs with all of the facilities for promoting advanced study.

The Years Ahead

It is anticipated that the next century will see great developments in the industrial-arts profession—greater than during the past 50 years. But these developments will not come spontaneously. Teachers must know where they are heading and must unite their efforts toward the achievement of these goals. When some writer summarizes achievement in the year two thousand and one he should be able to say with truth and conviction, "The progress in industrial arts during the second half of the twentieth century exceeded and eclipsed that of the first." ★

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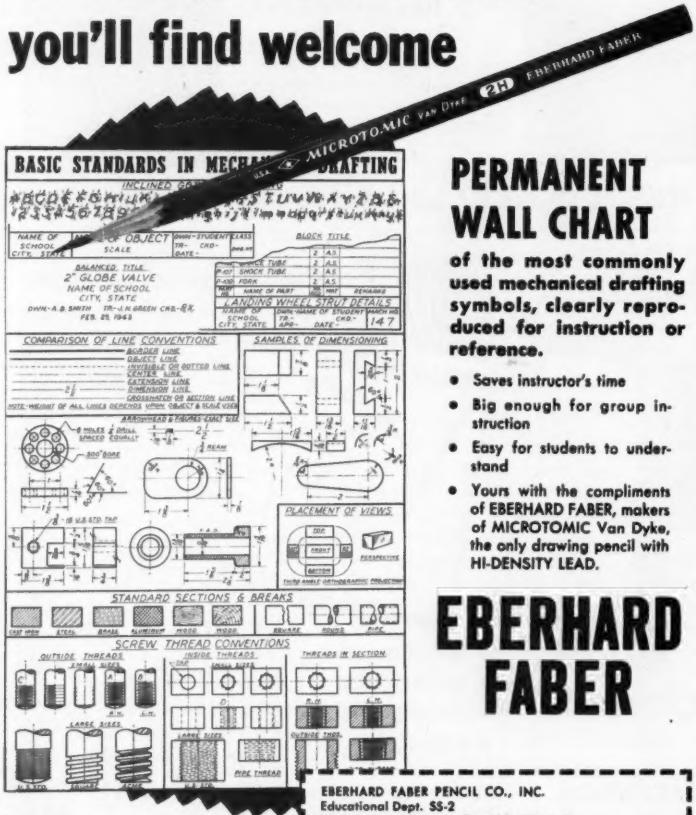

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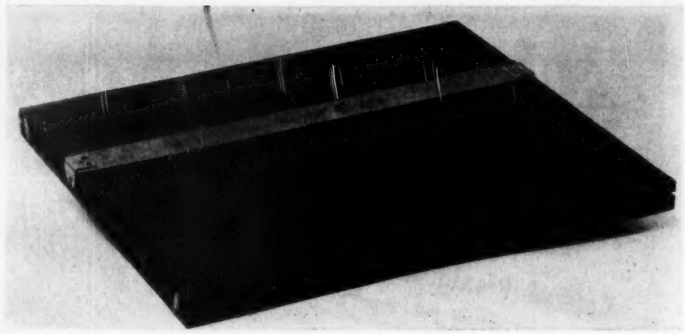


View of combined drawing board and straightedge showing straightedge mechanism attached.

Combination Drawing Kit Intrigues Pupils

By Arthur F. Schuster
Charles B. Gaskill Junior High School,
Niagara Falls, N.Y.

TESTED 55 PROJECT

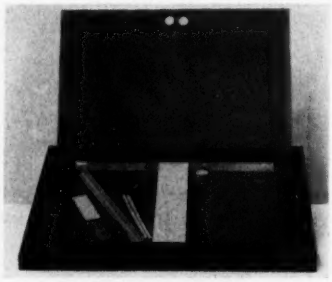
THIS combination drawing board and straightedge appeals to students who like to make their own equipment. Other advantages are its simple construction and reasonable cost, I have found.

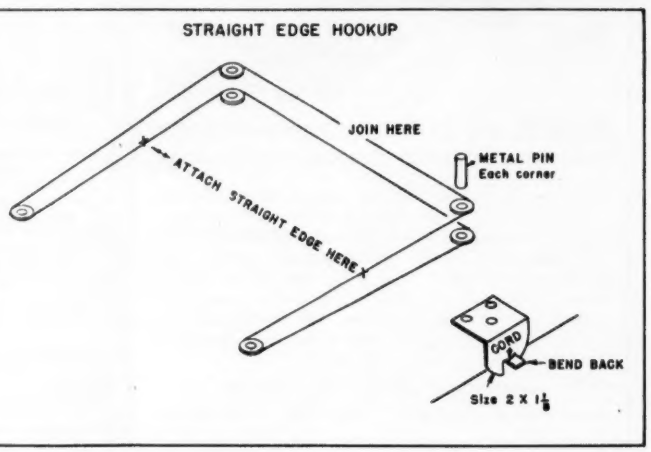
Two pieces of Masonite, a frame, a straightedge, and other simple materials are all that is needed to make a valuable instrument. A straightedge can be purchased or a damaged T-square used. The Masonite can be any convenient size. The back board slides in grooves in the frame to keep small drawing instruments and accessories in the compartments.

The clips on the straightedge can be made of aluminum or sheetmetal and fastened with rivets or screws. Six ½" pulleys are needed which can be made from ⅛" plastic.

A groove is cut on all outer sides of the frame for the straightedge mechanism. A stout cord or fish line serves as well as straightedge wire. ★

Drawing equipment and accessories may be kept in compartments under the separate backboard which slides in grooves cut in the frame.





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Instructional RESOURCES

Books:

Industrial Arts in Oklahoma. Oklahoma City: State Department of Education, Bulletin No. 105, 1951. Pp. 129.

This bulletin was prepared by a committee to acquaint school administrators with the purposes and extent of industrial arts work in the Oklahoma schools.

It emphasizes the fact that industrial arts is an integral part of a general education program. The factors to be considered in planning a school shop are discussed, and the objectives of the work are outlined.

In addition the problems of training and certification of teachers are dealt with, and the need for more effective supervision is explored. Teacher trainers and members of state department staffs will find this publication helpful in their work.

Robert A. Harden, University of Oklahoma, was chairman of the committee, and served as editor of the complete publication.

Modern Auto Body & Fender Repair. Vale. New York: Prentice-Hall, Inc., 1951. Pp. 279. $5.00.

This book covers quite completely the whole area of auto-body repair. Typical repair situations are presented and the procedures to follow in correcting them are illustrated by over 250 pictures and drawings.

The book should serve as a textbook in a school shop where auto-repair work is being taught, and it should prove a boon to the garage mechanic who seeks to keep himself up-to-date in his craft.

At present John W. Vale is Director of Training in the Vale Technical Institute. However during the past 28 years he has had a wide experience as a teacher or director of this work in such organizations as the U.S. Army, Lockheed Aircraft Corp., and T.W.A.

Home Repairs. Chicago: Popular Mechanics Press, 1951. Pp. 192. $2.50.

This book will serve as an excellent reference for the shop teacher and for the home mechanic who likes to repair his own equipment. Excellent suggestions are presented on household electrical installations, plumbing, roofing, heating, oil-burners, and many other jobs in the field of home repairs and maintenance.

TV and Electronics as a Career. Kamen and Dorf. New York: John F. Rider, Publisher, Inc., 1951. Pp. 326. $4.95.

This is not a technical book. Its message is principally about the people in radio and television, communications, and manufacturing. It is written for the purpose of helping young people who are planning a career to discover what the field of electronics offers. It should be of special interest to guidance workers, but it should appeal also to anyone who is interested in the inside story of a fascinating industry.

Richard H. Dorf is a well-known TV consultant. He served in this field during the war in the U.S. Air Force.

Ira Kamen is Director of TV Development in the General Bronze Corp. He is an international authority on hearing aids, and, during the war, he was in charge of radio engineering activities in the Brooklyn Navy Yard.

Practical Carpentry. Mix & Cirou. Chicago: Goodheart-Wilcox Co., Inc., 1951. Pp. 480. $5.00.

This book is really an encyclopedia of information covering the numerous jobs a carpenter is called on to do. The simplified drawings, and over 1000 illustrations, make these jobs look easy, even to a layman.

The book will be a valuable addition to the reference library in any school in which carpentry work is being taught.

The material in the book was edited by Floyd M. Mix, formerly with *Popular Mechanics Magazine*, and Ernest H. Cirou, Carpentry Department, Washburne Trade School, Chicago, Ill.

Treatise on Milling and Milling Machines. 3rd Edition. Cincinnati: The Cincinnati Milling Machine Co., 1951. Pp. vii + 910. $8.00.

This book contains a comprehensive treatment of the many problems encountered in the milling process. It is profusely illustrated. Typical jobs are shown, with the set-ups recommended for doing them. In addition there is a vast amount of information provided which is directly related to milling and to the milling machine. The contents range from the relatively simple work done on the mill to the quite intricate set-ups frequently found in production work. The book should be valuable as a reference for the machine designer as well as for the foreman or toolmaker who is called on to use the milling machine.

Schools would profit from having copies for reference in their drafting rooms and machine shops.

The material contained in the book was compiled by Mario Martellotti, Development Engineer in The Cincinnati Milling Machine Company, and is based on information received from his staff.

Carved Billfold Designs. Cherry. Bloomington, Ill.: McKnight & McKnight Publishing Co., 1951. Pp. 32. $1.00.

This book is precisely what the title implies. There is no text material, the designs being presented merely as suggestions for

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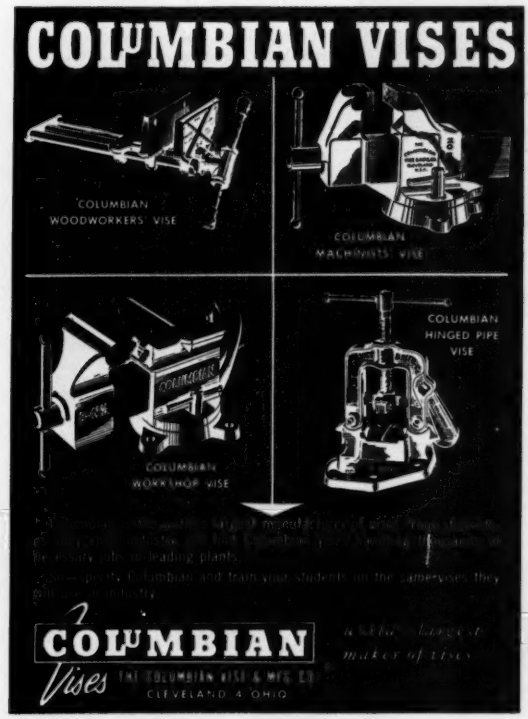

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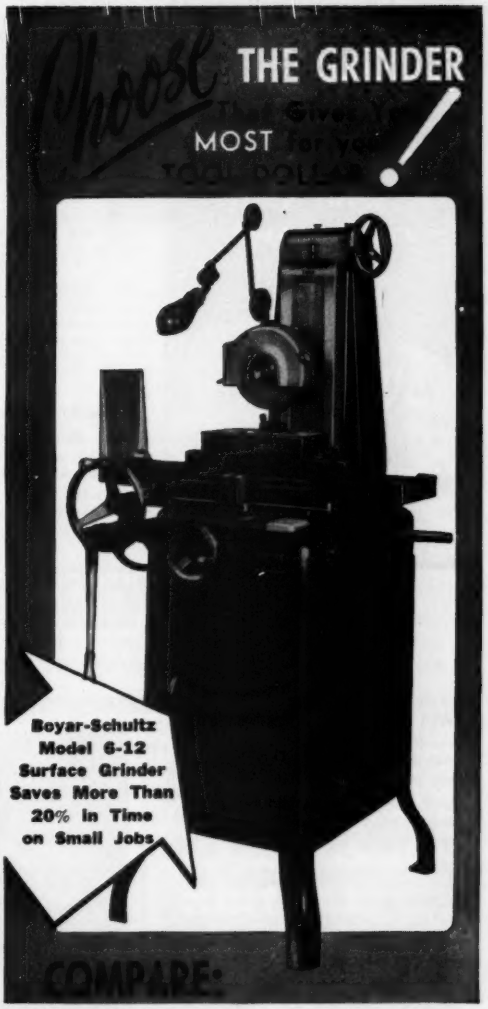

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Raymond Cherry is head of the industrial arts department in the Lockport, Illinois, schools.

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Ship Radar Techniques, Element VIII. (Supplement to Radio Operator's License Q & A Manual.) Milton Kaufman. Available for 78c from John F. Rider Publisher, Inc., 480 Canal St., New York 13, N. Y.

Audio-Visuals:

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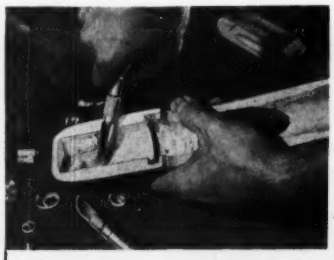

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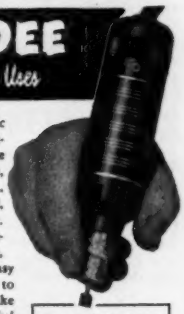

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Benchmaster Arbor Presses

A line of specially developed arbor presses which offer increased work capacity both in throat depth and vertical space is announced by Benchmaster. They are furnished in three sizes, numbers 0, 1 and 2 and in standard and solid platen types with choice of lever or pilot-wheel action. For descriptive literature write Benchmaster Mfg. Co., 1835 W. Rosecrans Ave., Gardena, Calif., mentioning SCHOOL SHOP; *or check no. 40 on the coupon.*

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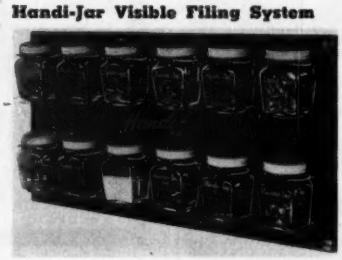

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Heston & Anderson Jointer

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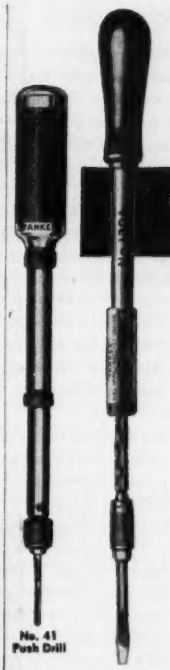

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Washington . . . . *from page 32*

which would not be eligible for aid under the federal-state vocational-education programs. The committee concluded that a program limited to either kind of training institution would not utilize fully all facilities for the preparation of practical nurses. It therefore included in the bill, along with federal financial assistance to strengthen state programs for practical-nurse training under state boards of vocational education, provision for federal grants to training institutions for costs of instruction for practical-nurse training similar to the grants for the professional health education and diploma-nurse training.

Segregation.—The current session of the United States Supreme Court (it convened in January) is expected to see a decision which may have far-reaching repercussions in public education.

The National Association for the Advancement of Colored People has appealed a decision of a federal district court sitting in Charleston, S. C., which upheld South Carolina's segregation laws. The suit was filed by Negro parents and school children of Clarendon County, S. C. Plaintiffs argued they were being denied equal rights under the 14th Amendment by reason of South Carolina's bi-racial system of public education, under which facilities for Negroes were allegedly far inferior to those provided for white children.

In Clarendon County the last annual appropriation for 2375 white students was $395,329, or $166-plus per pupil; and the last annual appropriation for 6531 Negro students was $282,950, or $43-plus per pupil.

Basis for the South's segregation with "equal facilities" policy is a Supreme Court decision handed down in 1896.

In the Clarendon case, defense attorneys conceded the evidence designed to show inequality of facilities. But NAACP also introduced professional testimony to show segregation was itself an inequality since it tended to foster the theory of a super-race.

Many educators feel that whatever ruling the Court makes will have a terrific impact on public education. Should the Court decide to dismiss the appeal without a ruling or should it restate the 1896 decision, it would in effect continue and sanction segregation.

But, in the opinion of many educators, actual "equal facilities" will mean reducing standards—in many cases inadequate and sub-par—of white schools to those of Negro schools.

Outside the South it is generally agreed that the burden of maintaining two separate and distinct school systems is just too great on the average state education budget.

If the Court reverses the District Court and bans segregation entirely, the South faces a difficult problem. Already in some states drastic action is in preparation.

Governor James Byrnes of South

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Carolina has said that his state would try to live within the law, but that in no case would white and Negro children be mixed. If it is not possible to maintain segregation, he said, "we will abandon the public school system."

Elimination of the public-school system in the South, aside from its obviously evil connotations, would be a blow to federal-aid-to-education legislation. Most southern Congressmen have been insisting on aid to public schools only but, if their home states were supporting private schools as a device to continue segregation, they would have to go along with a bill permitting aid to private schools. This would put them in the position of voting aid to parochial schools—almost political suicide to those with large fundamentalist protestant constituencies.

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Handicapped. — Vocational educators are being asked to increase their activities in connection with training of the physically handicapped.

This was one of several recommendations of a "task force" composed of nongovernmental representatives which met during the waning days of 1951. M. D. Mobley, Executive Secretary, American Vocational Association, was a member of the "task force," which was called by the Office of Defense Mobilization.

The "task force" felt that a great part of the job of utilizing the physically handicapped can and should be done at the community level. ODM is backing the program in the hope of solving some of the manpower problems arising from mobilization.

While no detailed recommendations for vocational education were made, the "task force" hoped vocational schools would do more than they have in the past in training the handicapped.

Training, however, is about 25 percent of the problem. Another important phase is educating employers to hire handicapped workers in jobs they can do. Again it was the opinion of the task force that vocational instructors and administrators can assist in a solution at the community level.

No recommendations for additional funds for training the physically handicapped were made. It was felt that this program should be integrated into the regular vocational-education program. It is agreed, however, that the need for training these handicapped workers will be a lever in prying full budgetary requests from Congress—if not an increase, at least the amount USOE requests, rather than a cut.

Practical Nurses.—A drive is under way to enact an emergency professional health training act before the 82nd Congress leaves Washington for the all-important elections this fall.

The legislation provides for substantial increases in funds for practical-nurse training as a part of the various vocational-education programs in the states. Also it would provide financial assistance to practical-nurse training programs maintained by hospitals.

Emergency professional health-training legislation was reported to the Senate last February, then, in the Fall, referred back to Committee when Senator Taft, an original co-sponsor, suddenly changed his mind and re-reported to the Senate on October 18. This was in the closing days of the first session and no action developed.

The bill is bitterly opposed by the American Medical Association, the U.S. Chamber of Commerce, and other groups, who lump it under the general heading of "socialized medicine." These are largely the same groups which have blocked federal aid to education. Arguments in opposition strike a significant parallel.

In considering a program for the assistance of practical-nurse training, the Senate committee was faced with a situation of considerable complexity. Practical-nurse training is now being carried on by some state boards of vocational education as a part of the trades and industry training program, with some federal financial help under existing legislation authorizing grants to states for vocational education. A supply of trained practical nurses is needed to supplement the activities of professional nurses. Trained practical nurses supplement and thereby extend the services of graduate nurses. They are also needed to care for patients who, although not seriously ill, require care at home. In cases requiring long-continued care at home or in an infirmary, the availability of practical-nurse service can mean the difference between going without care or straining the family budget to the breaking point.

To attempt to meet the country's entire need for nurses through training only professional nurses would require a much larger number of professional nurses and would entail more expense in paying for their services and in paying the costs of their training.

The plan to combine the facilities of vocational high schools with the clinical facilities in hospitals for training purposes uses to advantage established patterns of education. Many people familiar with nursing-education problems believe that vocational-education courses of less than college grade are the most effective means of providing this type of training. But, in a number of states, practical-nurse training receives insufficient emphasis and financial support as a part of the general vocational-education program. The Senate committee concluded that a separate program with a separate appropriation, specific plan requirements and matching provisions, and authority to use federal grant money for a broader category of program costs would be necessary in order to strengthen state programs for practical-nurse training.

At the same time there also exists a somewhat parallel pattern of practical-nurse training schools conducted by some hospitals and private institutions

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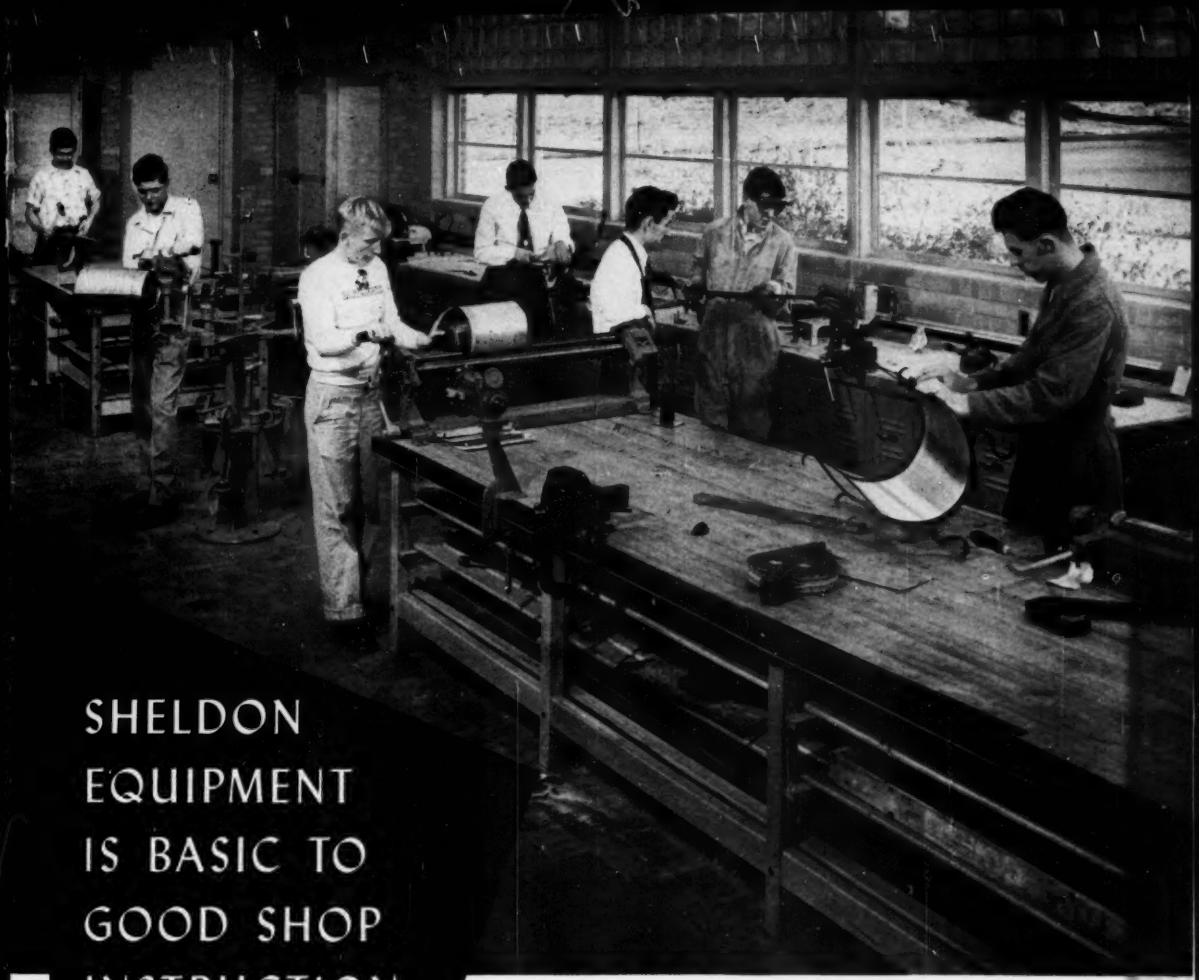

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